

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/002983

International filing date (day/month/year)
09.07.2004

Priority date (day/month/year)
12.07.2003

International Patent Classification (IPC) or both national classification and IPC
H05K3/20, H05K3/46, H01L23/538

Applicant
HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 56.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

10/564238

International application No.
PCT/GB2004/002983

IAP20 Rec'd. ST-10 11 JAN 2006

Box No. 1 Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/002983

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/002983

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 38,39

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 38,39 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the whole application or for said claims Nos.
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/002983

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3-9,13-23,25-35
	No: Claims	1,2,10-12,24,36,37
Inventive step (IS)	Yes: Claims	none
	No: Claims	1-37
Industrial applicability (IA)	Yes: Claims	1-37
	No: Claims	none

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/002983

IAP20 Rec'd PCT/PTO 11 JAN 2006

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The claims must not, in respect of the technical features of the invention, rely on references to the description or drawings "except where absolutely necessary". However, in the present application it appears possible to avoid such reference. Claim 38 does not meet the requirements of Rule 6.2(a) PCT (see also the Guidelines, paragraph 5.10).
2. Claim 39 does not specify any technical features or method steps. The subject matter of said claim lacks, therefore, clarity (Article 6 PCT, see also the Guidelines, paragraphs 5.31 - 5.33).

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: US-A-4 159 222 (LEBOW SANFORD ET AL) 26 June 1979 (1979-06-26)

1. Document D1 discloses (col. 4, l. 40 - col. 5, l. 25, Figs. 6 and 7A) a cross-over of first and second separate elongate conductive interconnects, the cross-over comprising:
 - a first elongate conductive interconnect;
 - a second elongate conductive interconnect comprising:
 - a first conductive portion separate from the first conductive interconnect,
 - a second conductive portion separate from the first conductive interconnect and the first conductive portion, and
 - a third electro-deposited metal portion 62 interconnecting the first and second conductive portions;
 - first insulating material 50 between the first elongate conductive interconnect 30 and the third portion 62 of the second elongate conductive interconnect; and
 - a substrate 72, wherein
 the first insulating material 50 and the third portion 62 are positioned between the substrate 72 and the first elongate interconnect 30.

Thus, the subject matter of claim 1 is not novel (Article 33(2) PCT).

2. The same reasoning applies, *mutatis mutandis*, to the subject matter of the corresponding independent method claim 24, which, therefore, is also considered not new.

3. Although drafted as independent, claims 36 and 37 relate to the same subject matter as claim 1 (see the comments under point VIII below). However, the following is pointed out:

The method of claim 24 being known, the subject matter of claim 36 also lacks novelty.

The first insulating material of the cross-over known from document D1 directly contacts the third electro-deposited metal portion. Consequently, the subject matter of claim 37 is also not new.

4. Independent claim 23 as well as dependent claims 2 - 22 and 25 - 35 do not appear to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step.

Re Item VII

Certain defects in the international application

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein (see also the Guidelines, paragraph 4.05).

2. The features of the claims are not provided with reference signs placed in parentheses in order to facilitate their understanding (Rule 6.2(b) PCT, see also the Guidelines, paragraph 5.11).

Re Item VIII

Certain observations on the international application

1. The application contains three independent claims directed to a cross-over, i.e. claims 1, 36 and 37. Thus, the number of independent claims seems unreasonable with respect to the nature of the invention which the applicant seeks to protect (Rule 6.1(a) PCT).

Lack of clarity of the claims as a whole arises, since the plurality of claims directed to the same subject matter makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

The requirements of Article 6 PCT regarding conciseness and clarity are, therefore, not met (see also the Guidelines, paragraph 5.42).

2. The last part of the description (page 10, last two paragraphs) implies that the subject-matter for which protection is sought may be different to that defined by the claims. This results in lack of clarity of the claims (Article 6 PCT) when the description is used to interpret them (see the Guidelines, paragraph 5.30).
